



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,607	02/19/2004	Yoshihiko Takeda	1081.1190	3173

21171 7590 12/08/2005

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

PHAN, RAYMOND NGAN

ART UNIT PAPER NUMBER

2111

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/780,607	Applicant(s) TAKEDA ET AL.	
	Examiner Raymond Phan	Art Unit 2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02192004</u> . | 6) <input type="checkbox"/> Other: _____ |

Part III DETAILED ACTION

Notice to Applicant(s)

1. This application has been examined. Claims 1-16 are pending.
2. The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 2111.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objection

4. Claims 1-16 are objected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 1 (page 21, line 12), claim 8 (page 23, line 2), using the phrase, "...the allocation of said pre-fetch buffers...", lacks proper antecedent basis and causes the claim to be vague and indefinite.

5. The remaining claims, not specifically mentioned, are objected for incorporating the defects from the parent claim by dependency.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applications Admitted Prior Arts (hereinafter AAPA) in view of Hum et al. (US No. 6,594,730).

In regard to claims 1, 8, AAPA disclose a bus connection circuit, which is connected via a bus to a bridge circuit having a plurality of pre-fetch buffers for pre-fetching of data from an external device, and which receives data from said pre-fetch buffers after assertion of a request (see figure 8), comprising: a bus interface portion which outputs request signals indicating the allocation of said pre-fetch buffers, and which receives corresponding grant signals from said bridge circuit (see figure 9, page 3-4). But AAPA does not specifically disclose a plurality of request queues; an arbiter which performs arbitration of the requests of said plurality of request queues. However Hum et al. disclose a plurality of request queues 110-130 (see figure 1); an arbiter 170 which performs arbitration of the requests of said plurality of request queues (see figure 1, col. 2, lines 1-44). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Hum et al. within the system of AAPA because it reduces the latency for memory requests and improves the efficiency of the memory interface.

In regard to claims 2, 9, AAPA disclose wherein said bus interface portion releases said bus according to said request signal upon reception of a retry response from said bridge circuit prompted by said request signal, and outputs to said bus a request signal indicating the allocation of other pre-fetch buffers (see pages 3-4).

In regard to claims 3, 10, AAPA disclose wherein said request queues give priority to and assert an initial read request over a read request corresponding to said retry response (see pages 3-4).

In regard to claims 4, 11, AAPA disclose wherein said request queues have a register which sets the time from receipt of said retry response until assertion of the read request corresponding to said retry response (see page 3-4).

In regard to claims 5, 12, Hum et al. explicitly disclose an internal circuit (i.e. request generator) which issues read requests to said plurality of request queues (see col. 2, lines 1-20).

In regard to claims 6, 13, AAPA disclose wherein said request is a read request to memory via said bridge circuit (see pages 3-4).

In regard to claims 7, 14, AAPA disclose wherein said bus is a PCI bus (see figure 8).

In regard to claim 15, AAPA disclose wherein said bridge circuit assigns corresponding pre-fetch buffers in response to said request signals, outputs retry responses to said bus connection circuit, and outputs read requests to said memory (pages 5-7).

In regard to claim 16, AAPA disclose wherein said bridge circuit examines corresponding pre-fetch buffers in response to request signals for said retry responses, and transfers data in said pre-fetch buffers to said bus connection circuit (see page 5-7).

Conclusion

8. All claims are rejected.
9. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure.

Batchelor et al. (US No. 6,502,157) disclose a method and system for prefetching data in a bridge system.

Lackey, Jr. et al. (US No. 6,694,397) disclose a request queuing system for a PCI bridge.

Eckert et al. (US No. 5,168,570) disclose a method and apparatus for multiple requests toggling priority system.

Dyer (US No. 6,629,220) discloses a method and apparatus for dynamic arbitration between a first queue and a second queue based on a high priority transaction type.

Pawlowski et al. (US No. 5,905,876) disclose a queue ordering for memory and I/O transactions in a multiple concurrent transaction computer system.

Wu (US No. 6,970,978) discloses a system and method for providing a pre-fetch memory controller.

Chambers et al. (US No. 5,933,610) disclose a predictive arbitration system for PCI bus agents.

Goudie (US No. 6,898,649) discloses a arbiter for queue management system for allocating bus mastership as a percentage of total bus time.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Raymond Phan, whose telephone number is (571) 272-3630. The examiner can normally be reached on Monday-Friday from 6:30AM- 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Primary, Paul Myers can be reached on (571) 272-3639 or via e-mail addressed to paul.myers@uspto.gov. The fax phone number for this Group is (571) 273-8300.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [raymond.phan@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

Application/Control Number: 10/780,607


Page 6

Art Unit: 2111

Private PAIR only. For more information about the PAIR system, see [hop://pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 central telephone number is (571) 272-2100.

Raymond Phan
November 28, 2005


REHANA PERVEEN
SUPERVISORY PATENT EXAMINER
12/5/05